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(54) Telecommunications services apparatus

(57) Apparatus and method of controlling delivery of text messages to a subscriber (2, 9, 10) in a telecommunications services apparatus, the method comprising the steps of the subscriber making a selection as to the mode or modes of delivery that the subscriber requires for at least one future text message, or category of future text messages, for example delivery by fax or e-mail, the subscriber's requested selection being implemented

by a message processing means (3) in the form of an SMS router which is part of the home network (B) with which the subscriber's mobile telephone is normally associated, the arrangement being such that any text messages intended by the sender (1) to be delivered to the said subscriber, as intended receiver thereof, are directed to the message processing means which then implements the delivery mode previously selected by the subscriber (2, 9, 10).

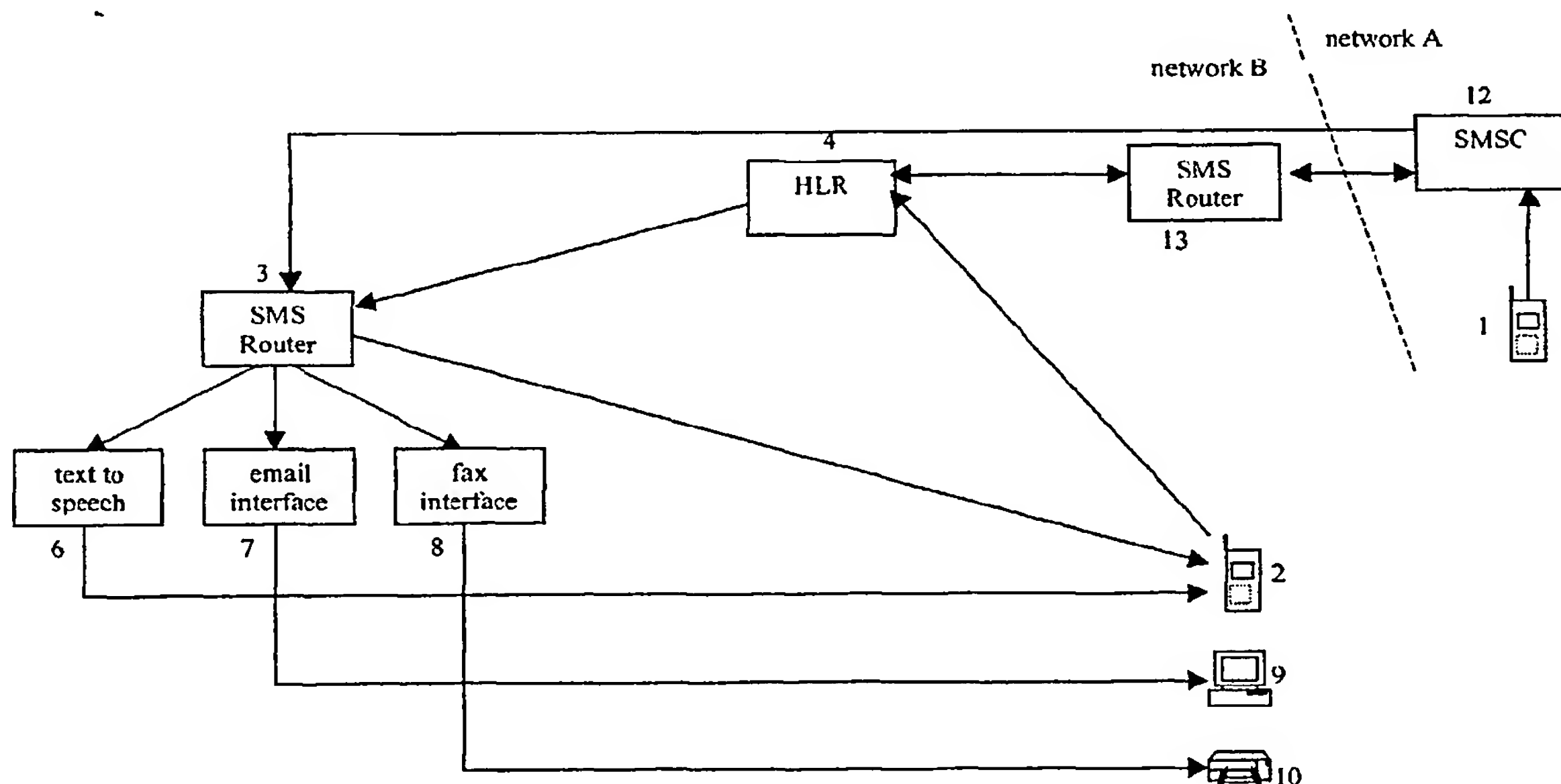


FIGURE 2

Summary of the Invention

[0012] According to one aspect of the invention we provide a method of controlling delivery of text messages to a subscriber in a telecommunications services apparatus, the method comprising the steps of the subscriber making a selection as to the mode or modes of delivery that the subscriber requires for at least one future text message, or category of future text messages, the subscriber's requested selection being implemented by a message processing means which is part of the home network with which the subscriber's mobile telephone is normally associated, the arrangement being such that any text messages intended by the sender to be delivered to the said subscriber, as intended receiver thereof, are directed to the said message processing means which then implements the delivery mode previously selected by the subscriber.

[0013] According to a second aspect of the invention we provide a telecommunications services apparatus comprising a message processing means that is capable of storing a selection of one or more selectable modes of delivery of a text message made by a subscriber to a network incorporating the message processing means and to implement the previously selected mode or modes of delivery on receipt by the message processing means of a text message, intended for receipt by said subscriber, by forwarding the message to one or more delivery paths of the message processing means.

[0014] The message processing means may be an SMSC or an STP (signalling transfer point), for example, but preferably the message processing means is an SMS router.

[0015] A third aspect of the invention is a telecommunication network comprising a telecommunications services apparatus in accordance with the second aspect of the invention and comprising an HLR (home location register) and a signal processing means, said signal processing means being configured in association with the HLR to intercept routing queries sent to the HLR of said network from another network, for receiving a text message from such another network, to communicate with the HLR but to provide a modified address which will cause the text message from said another network to be sent to the message processing means which will then effect delivery in accordance with a previously selected mode or modes of delivery.

[0016] The message processing means may be, for example, an HLR or other signalling means, but preferably the message processing means is an SMS router.

[0017] In one embodiment of the invention, alternative delivery means may be selected by a potential recipient ('the recipient') of text messages. The recipient may choose that his text messages should be received by a different method, for example by being read out in a voice call. This feature would be useful to a car-driver who is otherwise unable to receive text messages while travelling. Examples of alternative delivery means include-

[0018] In a further embodiment of the present invention, additional delivery means may be selected by the recipient. The recipient may choose that in addition to being delivered by SMS in the normal way, his text messages should also be received by a different method. Examples of additional delivery means include-

- delivery to a fax machine
- delivery to a fax mailbox
- delivery to an email address
- delivery by text-to-speech conversion and read-out in a voice call
- delivery to a pager

[0019] In some cases, the additional delivery means may also be useful as a means of preserving or archiving the received messages.

[0020] The delivery method may be selected manually by the recipient in advance of potential receipt of messages. The means of control may be by SMS or USSD or another method.

[0021] The delivery means may be set up in advance by the recipient to automatically select between two or more delivery methods. The means of control may be by SMS, USSD, interactive voice call or another method. Automatic selection may for example be on the basis of time of day, being in or out of radio coverage, by the insertion of a handset into or removal of the handset from a car kit, or by being in a specified 'home' cell.

[0022] In a further application of the invention, the means, timing, allowability or other aspect of the delivery process may be configured so as to be determined by a characteristic or characteristics of the message. For example filtering could be performed according to text matching or according to an address white list or black list. Certain origination addresses for example that matched against a list could be delivered immediately while others were only delivered between certain hours. Filtering according to textual content could allow the user to specify key words, names or

be performed either by the subscriber sending the command messages to a predefined destination number, or by another means. The intercepted commands are then used to configure the desired delivery options.

[0032] Sim Toolkit could be used to provide a more friendly user interface. Instead of entering USSD commands, the delivery options could then be selected from a handset menu.

5 [0033] SIM toolkit could also be used to automate the configuration of certain delivery options, for example always setting up delivery by voice when the handset is inserted into a car kit.

[0034] Using the techniques described above, potential recipients of messages could be offered services including but not limited to-

- 10 • normal message delivery
- delayed message delivery during certain hours
- Diversion of messages to fixed line when in home cell
- 15 • diversion of messages to an alternative mobile number
- diversion of messages on a time of day basis
- 20 • conversion of messages to email, fax or other medium
- conversion of messages to voice for delivery in a voice call
- archiving of received messages
- 25 • special handling of certain messages according to origination number, e.g. white lists, black lists
- removal of 'spam' messages
- 30 • filtering of messages by address information or content
- filtering or barring of messages with unsuitable content
- any combination of the above

35 [0035] The invention will now be further described, by way of example only, with reference to the accompanying drawings.

Brief Description of Drawings

40 [0036] In the drawings:-

45 **Figure 1** is a schematic of a network incorporating an SMS router in accordance with the invention, controlling alternative delivery paths, and showing communication paths between two mobile telephones, currently operating on the same network, and the SMS router.

Figure 2 is a schematic similar to Figure 1 but showing the corresponding communication paths when the two mobile telephones are currently operating on two different networks.

50 Description of Preferred Embodiments

[0037] With reference to Figure 1, a message sender [1] is connected to a telecommunications network and wishes to send a text message to a recipient [2] who subscribes to the same network. The message passes via an SMS Router [3]. The recipient may configure delivery options in the SMS router by means of commands (e.g. using USSD) sent to the router via the HLR [4]. The router is connected to a text-to-speech interface [6], an email interface [7] and a fax interface [8]. If the router detects that the message is for a recipient who has configured special delivery settings, e.g. delivery by email to an email account [9] or by fax to a fax machine [10], then the router can perform delivery via the relevant interface in addition to, or instead of, the normal SMS delivery. In other cases the router delivers the text

from a user (1) associated with said another network, is arranged to be intercepted by a signal processing means (3) provided in said home network, said signal processing means then responding to the routing query on behalf of the HLR (home location register) (4) of the home network to provide a modified address which causes the text message from said another network to be directed to said message processing means for implementation of said delivery mode.

4. The method of claim 3 in which the signal processing means (3) is an SMS router.
5. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing a delayed message delivery during selected hours of the day.
6. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing diversion of text messages to fixed line when the subscriber is in a home cell.
7. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing diversion of messages to an alternative mobile number.
8. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing diversion of messages on a time of day basis.
9. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing conversion of messages to voice for delivery in a voice call.
10. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing special handling of some messages according to originator number.
11. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing filtering of messages by address information or content.
12. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing delivery by fax (10).
13. The method of any one of the preceding claims in which the available delivery modes comprise a mode providing delivery by e-mail (9).
14. The method of any one of the preceding claims in which the subscriber makes the selection by a USSD command.
15. The method of any one of claims 1 to 13 in which the subscriber makes the selection by an SMS.
16. The method of any one of claims 1 to 13 in which the subscriber makes the selection by means of an interactive voice call.
17. A telecommunications services apparatus comprising a message processing means (3) that is capable of storing a selection of one or more selectable modes of delivery of a text message made by a subscriber (2, 9, 10) to a network (B) incorporating the message processing means and to implement the previously selected mode or modes of delivery on receipt by the message processing means of a text message, intended for receipt by said subscriber, by forwarding the message to one or more delivery paths of the message processing means.
18. A telecommunications services apparatus as claimed in claim 17 in which the message processing means is an SMS router.
19. A telecommunications network (B) provided with apparatus as claimed in claim 17 and comprising an HLR (home location register) (4) and a signal processing means (3), said signal processing means being configured in association with the HLR to intercept routing queries sent to the HLR of said network from another network (A), for receiving a text message from such another network, to communicate with the HLR but to provide a modified address which will cause the text message from said another network to be sent to the message processing means which will then effect delivery in accordance with a previously selected mode or modes of delivery.

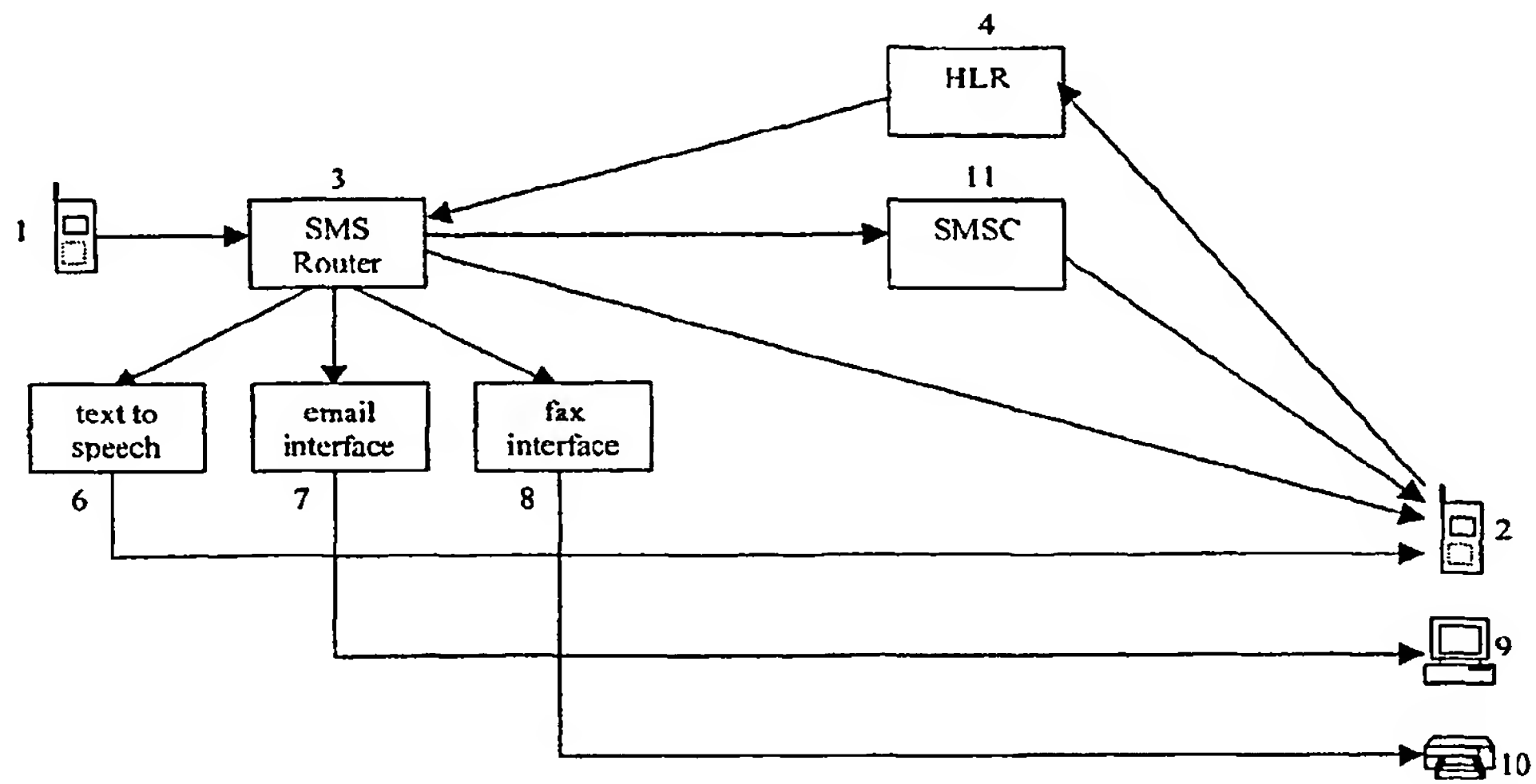


FIGURE 1

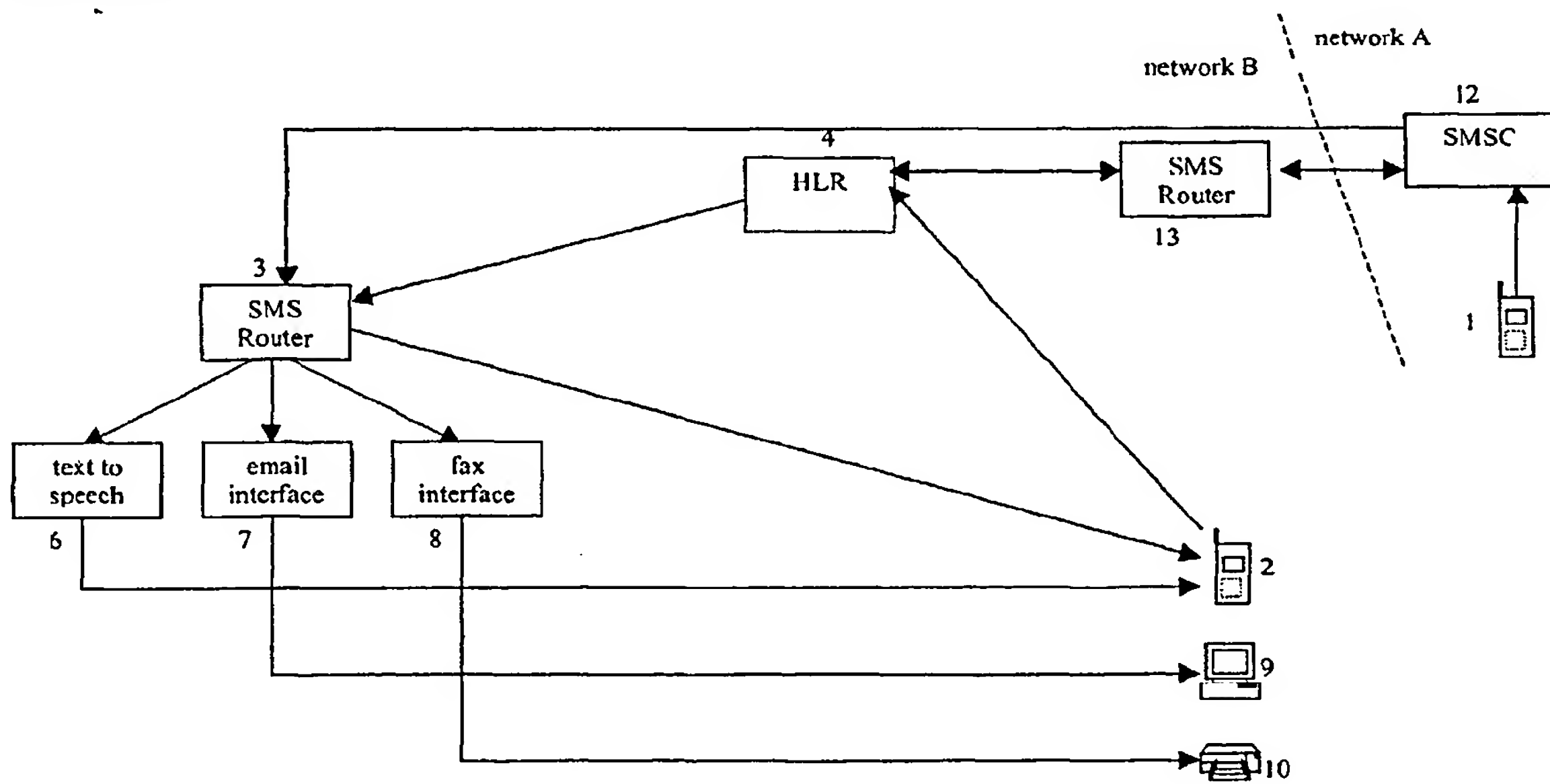


FIGURE 2

**ANNEX TO THE EUROPEAN SEARCH REPORT--
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